

ARCHIVED REPORT

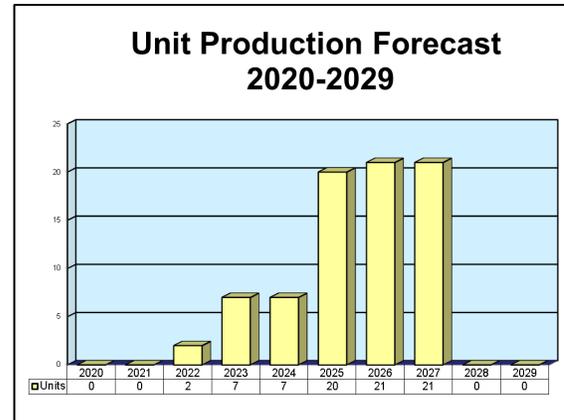
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LeoSat

Outlook

- LeoSat lost its potential investors and shut down
- LeoSat still a legal entity, and an investor or investors might come forward
- Founders actively looking for investors



Orientation

Description. LeoSat is a proposed constellation of low-Earth orbiting (LEO) satellites that will provide enterprise broadband Internet services with global coverage.

Sponsor. LeoSat Enterprises Inc, a private company based in Pompano Beach, Florida, was founded in 2013.

Status. In development.

Total Produced. None.

Application. LeoSat will provide low-latency broadband data services to airlines, and maritime,

finance, oil and gas, enterprise VSAT, government, and other industry customers using a network of between 78 and 108 satellites.

Price Range. The entire LeoSat project is expected to cost more than \$3.6 billion to complete, including manufacturing and launch. Each satellite will likely cost between \$25 million and \$30 million to build. Efforts are in the works to make the satellites smaller and lighter. If successful, more satellites will be able to be launched on a single rocket, thus lowering the cost to a reported \$3 billion.

Contractors

Prime

Thales Alenia Space	http://www.thalesgroup.com/en/global/activities/space , 100 boulevard du Midi, BP99, Cannes la Bocca, France, Tel: + 33 4 92 92 70 00, Fax: + 33 4 92 92 31 40, Prime
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LeoSat

Technical Data

Design Features. LeoSat will use a network of between 78 and 108 satellites operating in low-Earth orbit (LEO) to provide low-latency broadband services to enterprise customers. LeoSat estimates that data will be transmitted on its network about 50 percent faster than when using fiber-optic cables. That translates to data being sent from New York City to Tokyo in 130 milliseconds rather than the 250 milliseconds it takes for the data to travel the same distance on undersea fiber-optic cables.

Thales Alenia Space will build the constellation using its ELiTeBus-1000 platform as the basis for the satellites. Each LeoSat satellite is equipped with 10 Ka-band steerable antennas and will be connected to each other through optical inter-satellite links. Each steerable beam will have a throughput of 1.2 Gbps.

The ability to transmit data via optical links between satellites is the feature that will allow LeoSat to transmit data at planned high speeds. It will also enable customers to transmit data from one point to another securely, since data will remain on LeoSat's network the entire time. LeoSat plans to increase security even further by encrypting all data that passes through its network.

Such features will not come without a price. LeoSat requires customers to sign up for data speeds of at least 100 Mbps. In addition, customers will need to spend a few hundred thousand dollars for ground antennas. For that reason, LeoSat's service will be beyond the reach of most consumers. The company's primary customers will be large multinational businesses and governments. LeoSat has identified airlines and clients in maritime, finance, oil and gas, enterprise VSAT, and government as possible customers. Pharmaceutical and media companies have also expressed interest in the company's services.

Iridium Handsets. Using a computer and an Iridium satellite phone, users can connect to the Internet from almost anywhere at any time. Iridium Data Services can be run on a computer using the Windows operating system. To access the network, users must have an Iridium handset, an Iridium subscriber identity module card (which prevents anyone from using the phone without proper authorization), and the necessary computer software.

	<u>Metric</u>	<u>U.S.</u>
Spacecraft power	2.5 kW	
Orbital type	Polar	
Orbital altitude	1,430 km	888.6 mi
Spot beams	10	
Spot beam bandwidth (per beam)	1.2 Gbps	

Program Review

LeoSat was founded in 2013 with the goal of establishing a network of low-Earth-orbiting (LEO) satellites to provide high-speed data services to global businesses. Initial system architecture design work was performed in conjunction with Thales Alenia Space. Thales will provide its ELiTeBus-1000 platform, which has also been sold to Iridium and O3b.

Rather than focusing on providing satellite capacity to consumers, LeoSat will market its services to businesses by offering extremely high-speed bandwidth with secure, encrypted point-to-point communications capability.

Financing. LeoSat has worked to simultaneously design its system, sign contracts with customers, and

find investors. A major breakthrough occurred in May 2017, when LeoSat closed an \$11.5 million seed funding round with satellite operator SKY Perfect JSAT Corp as the anchor investor. The company focused on closing a \$100 million Series A funding round; however, none of the potential investors went through with the funding.

Customers. In September 2016, LeoSat announced its first customer: an unnamed high-speed equity trader. The company expects to use LeoSat's network to transmit equity buy and sell orders at rapid speeds. Another 10 potential customers signed strategic agreements with LeoSat in September 2017. Interest in purchasing services from LeoSat is coming from the oil and gas, financial, pharmaceutical, and media industries.

LeoSat

System Development. LeoSat began working with Thales Alenia Space on initial system architecture studies almost immediately after its founding in 2013. In September 2016, LeoSat signed a Phase B contract

with Thales. Under the contract, the two companies will develop detailed definitions of overall system architecture and performance specifications.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	2013	LeoSat founded, begins design work with Thales Alenia Space
Jun	2016	Preliminary Design Review completed
Sep	2016	First customer signs preliminary agreement for services
Sep	2016	Phase B contract signed with Thales Alenia Space
May	2017	Seed financing round closed, with SKY Perfect JSAT Corp as anchor investor
	2020	Scheduled launch of first LeoSat satellites

Forecast Rationale

LeoSat is well-placed to capitalize on the market it is focusing on: corporations and governments (rather than consumers). With this type of customer, security is paramount. LeoSat will send data "end to end," which promises a secure connection that cannot be hacked. LeoSat's premise is to use interconnected lasers to establish a main optical backbone in space, rather than the current terrestrial backbone. The system promises to be 1.5 times faster than terrestrial fiber networks.

Previously, LeoSat was to launch two "Early Bird" demonstration satellites; however, that plan has been

scrapped. The launch of the two demo satellites was deemed unnecessary and therefore abandoned as a cost-saving measure. Furthermore, both JSAT and Hispasat have declined to provide funding to LeoSat. As LeoSat still exists as a legal entity and its founders are looking for new investors, this report will remain active. If funding does not come through, then the LeoSat report will be archived. The Forecast has been subsequently pushed back.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program	High Confidence					Good Confidence			Speculative			Total
	Thru 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
Thales Alenia Space												
LeoSat Satellites												
	0	0	0	2	7	7	20	21	21	0	0	78
Total	0	0	0	2	7	7	20	21	21	0	0	78